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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Mathew et al.

Serial No.: 09/494,837

Group Art Unit: 1733

Filed: 01/31/00

Examiner: J. Aftergut

For: METHOD OF MAKING FLUOROCARBON COATED BRAIDED HOSE ASSEMBLIES

Attorney Docket No: 0153.00084

AFFIDAVIT

Assistant Commissioner for Patents
Washington, D.C. 20231

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Sir:

I, Norman S. Martucci, being duly sworn, do hereby say that:

1. I am co-inventor of the above-captioned invention.

2. I am skilled in the art of hose construction and have worked extensively in the development of a hose assembly, including coated braided hose assemblies and methods of manufacturing the same.

3. Teleflex, Inc., the Assignee of the presently pending application, manufactures a "double dip" hose assembly, which differs from the hose obtained by the "single dip" method disclosed in the European patent application. The fibers of the European patent application are coated a the dispersion prior to braiding of the fibers and then the braided tube is coated with the dispersion. However, the "double dip" method of the presently pending application is designed to overcome problems of uniformity of bonding and increased flexibility. These problems are not overcome with the method disclosed in the European patent application. The European patent application merely bonds the fibers and then has one dipping step for dipping the entire hose with the braid

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included therein. This does not increase the flexibility nor does it increase the bonding as is accomplished by the "double dip" method of the presently pending application. It was unexpectedly found that the "double dip" method of the presently pending application produces less variation in the strength of the bond and also is unexpectedly more flexible than the single dip hose of the European patent application. Despite the fact that the European patent application discloses dipping the fiber prior to adding the braid, the hose assembly of the presently pending application discloses applying the dispersion to the inner liner, then applying the braid and then applying a second dispersion to the braided layer. The first dispersion allows the braided layer to be bonded to the inner liner and a second dispersion or dip helps maintain the bond strength of the braided layer to the inner tube inner liner. There is no disclosure of this in the European patent application. The benefit of dipping the single fiber of the European patent application, is that the fiber has greater strength. In contradistinction, the benefit of the "double dip" method is that there is a greater bond strength between the braided layer and the inner liner. Further, as stated in the Office Action, the purpose of coating the braid was to fully immerse the fluoropolymer into the fibers of the braid. The present invention instead requires that there be a full bond between the braid and the inner liner. This is achieved by using a "double dip" method wherein two dipping processes occur. This "double dipping" method produces less variations in the strength of the bond and is more flexible than the hose of the European patent application. In this regard, the European patent application is still a single dip method as can be found in other hose assembly patents such as United States Patent No. 5,142,782 wherein Teflon hoses extruded a braid is applied to the Teflon tube and a dispersion including a fluorocarbon polymer material is applied to the braided layer. As is shown in the attached data, this single dip method does not provide the higher bond strength found with the "double dip" method of the presently pending application.

4. The following data presented in the attached exhibits demonstrate the unexpected results obtained by the "double dip" method of the present invention.

Referring specifically to the attached exhibits, the document dated 9/8/92 shows data for single dip. The document dated 9/9/92 for Part No.: TFH-1001-060 show a peel

strength for the single dip to be 7.41 pounds plus or minus 1.26 pounds. Hence, there is great variation and higher peel strength. The document in the form of the table dated 6/11/96 and entitled 1995 Peel Data For TFH-1002-050 shows the uniform peel strength data for the tubes resulting from the "double dip" process. The peel strength is lower (between 3 and 4 pounds) but the variation is tighter than that of the single dip process.

5. Automotive customers have made the "double dip" hose of the present invention a significant commercial hose device based upon the characteristics of the "double dip" hose having less variation in strength of the bond and being more flexible.

The undersigned declares further all statements made herein of his knowledge are true and that all statements made on information and belief are believed to be true; and further that the statements were made with the knowledge that willful and false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Norman S. Martucci
Date: June __, 2002

STATE OF MICHIGAN)
) ss.
COUNTY OF MACOMB)

On this _____ day of _____, 2002, personally appeared before me, NORMAN S. MARTUCCI to me known to be the person named in and who executed the above instrument, and acknowledged that he executed the same for the uses and purposes therein mentioned.

Notary Public

My Commission Expires: